

Amendments to the Specification:

Please replace the paragraph which appears on page 1, beginning at line 2 and ending on page 2, line 7, with the following rewritten paragraphs:

FIELD OF THE INVENTION

The present invention relates to a sensor arrangement for the potentiometric testing of a plurality of samples, especially such an arrangement having so-called ISFET or CHEMFET sensors.

BACKGROUND OF THE INVENTION

These kinds of potentiometric FET-sensors are suited for measuring the pH value or the redox potential of an analyte. DE 198 57 953 C2 concerns, for example, the realization of a pH-ISFET-sensor, in which, for reducing the circuit complexity, the ISFET-sensor is connected in a bridge circuit having at least three additional resistances. Regarding the mounting of the FET-sensor, the following principles are, among others, known. Benton discloses in US Patent No. 5,833,824 a pH-sensor, in which an ISFET-chip is secured on the underside of a substrate by means of a metal seal, which surrounds the ion-sensitive region of the ISFET-chip, with the ion-sensitive region being aligned with an opening in the substrate. Outside of the region surrounded by the seal, conductive traces on the surface of the chip are directed to contact areas, which are connected via solder, braze or weld connections with complementary contact areas on the underside of the substrate. The solution proposed by Benton is very complex, to the extent that, both in the case of the manufacture of the seal and also in the case of the implementation of the electrical contacting, involved solder, braze, or weld processes are required.

The state of the art discussed in Benton describes ISFET-sensors, in which an ordinary polymer seal is arranged about the opening of the sample chamber wall between the substrate and the ion-sensitive region of the ISFET-chip. The contacting of the ISFET-chip occurs, however, not to the substrate in the sense of Benton, but, instead, to a carrier, which supports the ISFET-chip on the rear side facing away from the substrate. For this purpose, bond wires are led between

contact areas on the front side of the ISFET-chip to contact areas on the carrier outside of the bearing surface of the ISFET-chip. Also, this solution is complicated, because bonding tasks are required for contacting the chip, and because, for assuring function and integrity of the sensor, the chip must be oriented within narrow tolerances, both with reference to the substrate and with reference to the carrier.

Additionally, solutions are known, in which the chips have their contact areas, or bonding pads, on the rear side facing away from the ion-sensitive region. These chips can then be contacted on the rear side via a carrier having complementary contact areas, with an anisotropic, elastic conductor, e.g. a silicone foil with embedded gold threads, being arranged in a direction perpendicular to the plane of the foil, for assuring adequate galvanic contact between the rear side of the chip and the carrier. These solutions are very expensive ~~in the~~ with respect ~~that to~~ the leading of the electrical contacts through the chip from its front side to its rear side, ~~makes~~ making its manufacturing costs a number of times greater.

On page 2, prior to the paragraph which begins on line 11, please insert the following:

SUMMARY OF THE INVENTION

Please replace the two paragraphs which appear on page 2, beginning at line 15 and ending on line 22, with the following rewritten paragraph:

The object is achieved according to the invention by the sensor arrangement ~~defined in the independent claim 1.~~ The sensor arrangement of the invention which includes: At least two sample chambers; at least two potentiometric FET-sensors, especially ISFET-sensors or ChemFET-sensors, each possessing a sensitive surface section, with each sensitive surface section being in flow-connection with a respective one of the sample chambers; a reference cell having a reference medium for providing a reference potential, and with the sample chambers being connected with the reference medium via an electrolyte bridge.

Please replace the paragraph which appears on page 4, line 12 and ending on line 22, with the following rewritten paragraph:

Currently, the principle of construction of the German Patent Application No. 10260961.6 already mentioned ~~in the introduction~~ above is preferred. According to this, the FET-sensors have on the first contact areas facing toward the platform first contact areas, which align with fitting, second contact areas on the underside of the platform facing toward the FET-sensor. The underside of the platform has conductive traces, via which the second contact areas are electrically connected with suitable circuits for supplying the FET-sensors. Between the underside of the platform and the upper surface of the FET-sensor, an elastic layer, or foil, is arranged, which is, at least sectionally, anisotropically conductive perpendicular to the upper surface of the FET-sensor, with the elastic layer having an opening, which is aligned with the bore. The elastic foil, or layer, serves, thus, on the one hand, as a seal and, on the other hand, for electrical contacting.

On page 5, prior to the paragraph which begins on line 22, please insert the following:

BRIEF DESCRIPTION OF THE DRAWINGS

Please replace the paragraph which appears on page 5, line 22 and ends on page 6, line 5, with the following rewritten paragraph:

Fig. [[1a]] 1 a schematic drawing of the principle of functioning of a sensor arrangement according to the present invention;

Fig. [[2aa]] 2a a bottom view of a platform for a sensor arrangement according to the present invention;

Fig. [[2ba]] 2b a sealing element for a sensor arrangement according to the present invention; and

Fig. [[2ca]] 2c a longitudinal section through a sensor arrangement according to the present invention.

On page 6, prior to the paragraph which begins on line 6, please insert the following:

DESCRIPTION OF THE PREFERRED EMBODIMENTS